

Light Truck and Utility Vehicle Manufacturing: 2002

Issued September 2004

EC02-311-336112

2002 Economic Census

Manufacturing

Industry Series



USCENSUSBUREAU

Helping You Make Informed Decisions

U.S. Department of Commerce
Economics and Statistics Administration
U.S. CENSUS BUREAU



Table 1. Historical Statistics for the Industry: 2002 and Earlier Years

[Data based on the 2002 Economic Census and the 2002 Annual Survey of Manufactures (ASM). For information on confidentiality protection, sampling error, nonsampling error, and explanation of terms, see note at end of table. For meaning of abbreviations and symbols, see introductory text]

Industry and year ¹	Com- panies ²	All estab- lish- ments ³	All employees		Production workers			Value added (\$1,000)	Total cost of materials (\$1,000)	Total value of shipments (\$1,000)	Total capital expendi- tures (\$1,000)	
			Number ⁴	Payroll (\$1,000)	Number ⁴	Hours (1,000)	Wages (\$1,000)					
336112, Light truck and utility vehicle manufacturing	2002..	66	94	106 295	7 414 698	96 196	199 036	6 616 792	39 079 960	92 108 529	131 253 523	2 544 310
	2001..	N	N	98 587	6 222 219	88 959	181 719	5 366 178	26 945 057	93 647 803	120 609 443	1 726 216
	2000..	N	N	100 808	6 934 177	90 316	189 061	6 078 131	27 845 348	93 503 982	121 185 408	2 495 320
	1999..	N	N	99 291	6 820 089	90 504	199 573	6 025 140	42 081 449	103 247 527	145 329 045	2 769 488
	1998..	N	N	92 170	5 464 176	84 542	172 048	4 830 976	33 284 816	81 185 970	114 494 833	2 078 682
	1997..	84	111	94 018	5 399 885	86 439	180 288	4 775 997	39 377 004	70 865 243	110 178 158	1 769 486

¹Statistics presented for years ending in 2 and 7 are census data. Interim census years are derived in a representative sample of manufacturing establishments canvassed in the Annual Survey of Manufactures (ASM).

²For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

³Includes establishments with payroll at any time during the year.

⁴Number of employees figures represent average number of production workers for pay period that includes the 12th of March, May, August, and November plus other employees for payroll period that includes the 12th of March.

Note: The data in this table are based on the 2002 Economic Census and the 2002 Annual Survey of Manufactures (ASM). To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain sampling errors and nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C.

Table 2. Industry Statistics for Selected States: 2002

[States that are a disclosure or with less than 100 employees are not shown. Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, explanation of terms, and geographical definitions, see note at end of table. For information on geographic areas followed by *, see Appendix D. For meaning of abbreviations and symbols, see introductory text]

Industry and geographic area	E ¹	All establishments ²		All employees		Production workers			Value added (\$1,000)	Total cost of materials (\$1,000)	Total value of shipments (\$1,000)	Total capital expenditures (\$1,000)
		Total	With 20 employees or more	Number ³	Payroll (\$1,000)	Number ³	Hours (1,000)	Wages (\$1,000)				
336112, Light truck and utility vehicle manufacturing												
United States	—	94	39	106 295	7 414 698	96 196	199 036	6 616 792	39 079 960	92 108 529	131 253 523	2 544 310
Michigan	—	6	5	18 642	1 387 676	17 200	36 856	1 273 603	6 501 149	17 758 201	24 268 950	74 991
Missouri	—	8	5	17 320	1 185 156	15 996	32 673	1 075 034	4 129 760	16 488 688	20 622 285	124 971

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data account for 10 percent or more of the figures shown: 1–10 to 19 percent; 2–20 to 29 percent; 3–30 to 39 percent; 4–40 to 49 percent; 5–50 to 59 percent; 6–60 to 69 percent; 7–70 to 79 percent; 8–80 to 89 percent; 9–90 percent or more.

²Includes establishments with payroll at any time during the year.

³Number of employees figures represent average number of production workers for pay period that includes the 12th of March, May, August, and November plus other employees for payroll period that includes the 12th of March.

Note: The data in this table are based on the 2002 Economic Census. To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C. For geographical definitions, see Appendix D.

Table 3. Detailed Statistics by Industry: 2002

[Data based on the 2002 Economic Census and the 2002 Annual Survey of Manufactures (ASM). For information on confidentiality protection, sampling error, nonsampling error, and explanation of terms, see note 2 at end of table. For meaning of abbreviations and symbols, see introductory text]

Item	Value
336112, Light truck and utility vehicle manufacturing	
Companies ¹	number.. 66
All establishments ²	number.. 94
Establishments with 1 to 19 employees	number.. 55
Establishments with 20 to 99 employees	number.. 5
Establishments with 100 employees or more	number.. 34
All employees ³	number.. 106 295
Total compensation	\$1,000.. 10 137 918
Annual payroll	\$1,000.. 7 414 698
Total fringe benefits	\$1,000.. 2 723 220
Production workers, average for year	number.. 96 196
Production workers on March 12	number.. 94 916
Production workers on May 12	number.. 97 369
Production workers on August 12	number.. 96 072
Production workers on November 12	number.. 96 418
Production worker hours	1,000.. 199 036
Production worker wages	\$1,000.. 6 616 792
Total cost of materials	\$1,000.. 92 108 529
Materials, parts, containers, packaging, etc., used	\$1,000.. 91 587 924
Resales	\$1,000.. D
Purchased fuels	\$1,000.. D
Purchased electricity	\$1,000.. 230 330
Contract work	\$1,000.. 11 351
Quantity of electricity purchased for heat and power	1,000 kWh.. 5 606 863
Quantity of electricity generated less sold for heat and power	1,000 kWh.. S
Total value of shipments	\$1,000.. 131 253 523
Primary products value of shipments	\$1,000.. D
Secondary products value of shipments	\$1,000.. D
Total miscellaneous receipts	\$1,000.. D
Value of resales	\$1,000.. D
Contract receipts	\$1,000.. D
Other miscellaneous receipts	\$1,000.. D
Primary products specialization ratio	percent.. D
Value of primary products shipments made in all industries	\$1,000.. 131 510 008
Value of primary products shipments made in this industry	\$1,000.. D
Value of primary products shipments made in other industries	\$1,000.. D
Coverage ratio	percent.. D
Value added	\$1,000.. 39 079 960
Total inventories, beginning of year	\$1,000.. 1 809 838
Finished goods inventories	\$1,000.. 177 503
Work-in-process inventories	\$1,000.. 863 294
Materials and supplies inventories	\$1,000.. 769 041
Total inventories, end of year	\$1,000.. 1 942 140
Finished goods inventories	\$1,000.. 228 693
Work-in-process inventories	\$1,000.. 747 070
Materials and supplies inventories	\$1,000.. 966 377
Gross value of depreciable assets (acquisition costs) at beginning of year	\$1,000.. 26 851 726
Total capital expenditures (new and used)	\$1,000.. 2 544 310
Buildings and other structures (new and used)	\$1,000.. 456 776
Machinery and equipment (new and used)	\$1,000.. 2 087 534
Automobiles, trucks, etc., for highway use	\$1,000.. 5 451
Computers and peripheral data processing equipment	\$1,000.. 53 918
All other expenditures for machinery and equipment	\$1,000.. 2 028 165
Total retirements	\$1,000.. 1 297 161
Gross value of depreciable assets at end of year	\$1,000.. 28 098 875
Depreciation charges during year	\$1,000.. 1 920 638
Total rental payments	\$1,000.. 195 288
Buildings and other structures	\$1,000.. 46 931
Machinery and equipment	\$1,000.. 148 357
Total other expenses ⁴	\$1,000.. 656 838
Response coverage ratio ⁵	percent.. 98
Repair and maintenance services of buildings and/or machinery ⁴	\$1,000.. 160 348
Communications services ⁴	\$1,000.. 7 243
Legal services ⁴	\$1,000.. D
Accounting, auditing, and bookkeeping services ⁴	\$1,000.. D
Advertising and promotional services ⁴	\$1,000.. 1 603
Expensed computer hardware and supplies and purchased computer services ⁴	\$1,000.. 22 665
Refuse removal (including hazardous waste) services ⁴	\$1,000.. 22 672
Management consulting and administrative services ⁴	\$1,000.. 108 422
Taxes and license fees ⁴	\$1,000.. 62 276
All other expenses ⁴	\$1,000.. 270 111

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²Includes establishments with payroll at any time during the year.

³Number of employees figures represent average number of production workers for pay period that includes the 12th of March, May, August, and November plus other employees for payroll period that includes the 12th of March.

⁴Based on Annual Survey of Manufactures (ASM) sample data.

⁵A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight) for those Annual Survey of Manufactures (ASM) establishments that reported to the weighted total employment for all ASM establishments classified in this industry.

Note 1: The amounts shown for other expenses reflect only those services that establishments purchase from other companies.

Note 2: The data in this table are based on the 2002 Economic Census and the 2002 Annual Survey of Manufactures (ASM). To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain sampling errors and nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C.

Table 4. Industry Statistics by Employment Size: 2002

[Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, and explanation of terms, see note at end of table. For meaning of abbreviations and symbols, see introductory text]

Employment size class	E ¹	All establishments ²	All employees		Production workers			Value added (\$1,000)	Total cost of materials (\$1,000)	Total value of shipments (\$1,000)	Total capital expenditures (\$1,000)
			Number ³	Payroll (\$1,000)	Number ³	Hours (1,000)	Wages (\$1,000)				
336112, Light truck and utility vehicle manufacturing											
All establishments	—	94	106 295	7 414 698	96 196	199 036	6 616 792	39 079 960	92 108 529	131 253 523	2 544 310
Establishments with—											
1 to 4 employees	9	44	77	4 736	71	132	4 236	15 694	65 625	81 319	2 712
5 to 9 employees	9	6	44	2 757	38	74	2 470	8 246	29 683	37 698	1 141
10 to 19 employees	9	5	59	3 388	49	88	2 689	8 233	28 947	37 269	1 301
20 to 49 employees	8	5	151	6 186	134	224	4 904	18 089	42 524	58 267	2 454
50 to 99 employees	—	—	—	—	—	—	—	—	—	—	—
100 to 249 employees	—	—	—	—	—	—	—	—	—	—	—
250 to 499 employees	—	—	—	—	—	—	—	—	—	—	—
500 to 999 employees	—	—	—	—	—	—	—	—	—	—	—
1,000 to 2,499 employees	—	12	22 629	1 453 903	19 568	38 983	1 215 528	6 256 036	16 060 481	22 363 713	1 147 293
2,500 employees or more	—	22	83 335	5 943 728	76 336	159 535	5 386 965	32 773 662	75 881 269	108 675 257	1 389 409
Administrative records ⁴	9	41	67	3 885	61	111	3 444	12 852	53 746	66 598	2 222

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data account for 10 percent or more of the figures shown: 1–10 to 19 percent; 2–20 to 29 percent; 3–30 to 39 percent; 4–40 to 49 percent; 5–50 to 59 percent; 6–60 to 69 percent; 7–70 to 79 percent; 8–80 to 89 percent; 9–90 percent or more.

²Includes establishments with payroll at any time during the year.

³Number of employees figures represent average number of production workers for pay period that includes the 12th of March, May, August, and November plus other employees for payroll period that includes the 12th of March.

⁴Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. Data are also included in respective size classes shown.

Note: The data in this table are based on the 2002 Economic Census. To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C.

Table 5. Industry Statistics by Primary Product Class Specialization: 2002

[Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, and explanation of terms, see note at end of table. For meaning of abbreviations and symbols, see introductory text]

Industry or product class code	Industry or primary product class	All establishments ¹	All employees		Production workers			Value added (\$1,000)	Total cost of materials (\$1,000)	Total value of shipments (\$1,000)	Total capital expenditures (\$1,000)
			Number ²	Payroll (\$1,000)	Number ²	Hours (1,000)	Wages (\$1,000)				
336112	Light truck and utility vehicle manufacturing	94	106 295	7 414 698	96 196	199 036	6 616 792	39 079 960	92 108 529	131 253 523	2 544 310
3361120	Light truck and utility vehicle manufacturing	94	106 295	7 414 698	96 196	199 036	6 616 792	39 079 960	92 108 529	131 253 523	2 544 310

¹Includes establishments with payroll at any time during the year.

²Number of employees figures represent average number of production workers for pay period that includes the 12th of March, May, August, and November plus other employees for payroll period that includes the 12th of March.

Note: The data in this table are based on the 2002 Economic Census. To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C.

Table 6a. **Products Statistics: 2002 and 1997**

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, and explanation of terms, see note 2 at end of table. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)
336112	Light truck and utility vehicle manufacturing .....2002..	N	X	X	131 510 008
	.....1997..	N	X	X	107 172 812
3361120	Light truck and utility vehicle manufacturing .....2002..	N	X	X	131 510 008
	.....1997..	N	X	X	107 172 812
33611201	Trucks, truck tractors, and bus chassis (chassis of own manufacture) 14,000 lb or less, including minivans and sport utility vehicles .....2002..	N	X	X	131 303 567
	.....1997..	N	X	X	107 076 117
3361120100	Trucks, truck tractors, and bus chassis (chassis of own manufacture) 14,000 lb or less, including minivans and sport utility vehicles number..2002..	18	X	6 591 275.0	131 303 567
	.....1997..	20	N	S	107 076 117
3361120Y	Light truck and utility vehicle manufacturing, nsk, total .....2002..	N	X	X	206 441
	.....1997..	N	X	X	96 695
3361120YWW	Light truck and utility vehicle manufacturing, nsk, for nonadministrative-record establishments .....2002..	N	X	X	139 924
	.....1997..	N	X	X	60 663
3361120YWY	Light truck and utility vehicle manufacturing, nsk, for administrative-record establishments .....2002..	N	X	X	66 517
	.....1997..	N	X	X	36 032

Note 1: For some establishments, data have been estimated from central unit values that are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: p-10 to 19 percent estimated; q-20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Note 2: The data in this table are based on the 2002 Economic Census. To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C.

Table 6b. **Product Class Shipments for Selected States: 2002 and 1997**

[Not applicable for this report.]

Table 7. Materials Consumed by Kind: 2002 and 1997

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, and explanation of terms, see note 2 at end of table. For meaning of abbreviations and symbols, see introductory text]

Material code	Material consumed	Quantity	Delivered cost (\$1,000)
336112	Light truck and utility vehicle manufacturing		
00900001	Total materials	X	91 587 924
	.....2002..	X	70 450 770
	.....1997..	X	14 122 960
33631200	Gasoline engines and parts specially designed for gasoline engines	X	10 867 605
	.....2002..	X	2 434 370
	.....1997..	X	D
33635007	Drive train components and parts	X	12 285 473
	.....2002..	X	13 051 022
	.....1997..	X	D
33621101	Car bodies	X	D
	.....2002..	X	D
	.....1997..	X	D
001900A6	Refrigeration compressors, compressor units, condensing units, and other heat transfer equipment	X	3 037 672
	.....2002..	X	1 811 803
	.....1997..	X	5 960 085
33633000	Shocks, struts, and other suspension equipment and parts	X	3 601 787
	.....2002..	X	2 802 470
	.....1997..	X	1 291 015
33639901	Exhaust systems and parts	X	D
	.....2002..	X	D
	.....1997..	X	D
33351501	Machine tool accessories, including cutting tools	X	469 832
	.....2002..	X	156 967
	.....1997..	X	D
33399601	Fluid power pumps, motors, and hydrostatic transmissions (hydraulic and pneumatic)	X	D
	.....2002..	X	D
	.....1997..	X	D
33291207	Fluid power valves (hydraulic and pneumatic)	X	D
	.....2002..	X	D
	.....1997..	X	D
33399501	Fluid power cylinders and rotary actuators (hydraulic and pneumatic)	X	D
	.....2002..	X	D
	.....1997..	X	D
33291203	Fluid power hose and tube fittings and assemblies (hydraulic and pneumatic)	X	D
	.....2002..	X	D
	.....1997..	X	D
33399901	Fluid power filters (hydraulic and pneumatic)	X	20 645
	.....2002..	X	D
	.....1997..	X	D
00190087	Other transportation related fluid power products, hydraulic and pneumatic	X	N
	.....2002..	X	6 695 429
	.....1997..	X	9 707 741
33637000	Automotive stampings (including body parts, hubcaps, fenders, etc.)	X	464 648
	.....2002..	X	732 197
	.....1997..	X	653 221
33251011	Motor vehicle metal hardware (lock units, door and window handles, hinges, etc.), excluding forgings	X	D
	.....2002..	X	704 148
	.....1997..	X	1 179 160
33272203	Metal bolts, nuts, screws, washers, rivets, and other screw machine products	X	1 419 994
	.....2002..	X	1 278 150
	.....1997..	X	25 589
33200049	Other fabricated metal products (excluding forgings)	X	N
	.....2002..	X	70 462
	.....1997..	X	970 593
33210000	Forgings	X	D
	.....2002..	X	25 635
	.....1997..	X	15 593
33100035	Castings, rough and semifinished	X	1 943 896
	.....2002..	X	308 198
	.....1997..	X	2 068 503
33100033	Metal shapes and forms (excluding castings, forgings, and fabricated metal products)	X	1 323 694
	.....2002..	X	7 112 647
	.....1997..	X	2 955 253
33299101	Ball and roller bearings (mounted or unmounted)	X	553 645
	.....2002..	X	545 257
	.....1997..	X	1 059 787
32621003	Pneumatic tires and inner tubes	X	1 045 713
	.....2002..	X	4 485 697
	.....1997..	X	2 414 163
32622001	Rubber and plastics hose and belting	X	839 132
	.....2002..	X	363 298
	.....1997..	X	D
32600017	Fabricated rubber products (excluding tires, tubes, hose, belting, and gaskets)	X	D
	.....2002..	X	D
	.....1997..	X	D
33999103	Gaskets (all types), and packing and sealing devices	X	D
	.....2002..	X	D
	.....1997..	X	D
32610033	Fabricated plastics products (including components, housings, accessories, etc.), excluding gaskets, hose and belting	X	1 943 896
	.....2002..	X	308 198
	.....1997..	X	2 068 503
32720005	Glass and glass products (including windows and mirrors)	X	1 323 694
	.....2002..	X	7 112 647
	.....1997..	X	2 955 253
33636003	Seats (purchased separately) for automobiles, trucks, and buses	X	553 645
	.....2002..	X	545 257
	.....1997..	X	1 059 787
33636007	Seat covers, seat belts, and shoulder harnesses	X	1 045 713
	.....2002..	X	4 485 697
	.....1997..	X	2 414 163
33639911	Automotive air bag assemblies and parts	X	839 132
	.....2002..	X	363 298
	.....1997..	X	D
33636001	Automotive trimmings, textile (panels, headliners, etc.)	X	D
	.....2002..	X	D
	.....1997..	X	D
31411003	Carpeting	X	D
	.....2002..	X	D
	.....1997..	X	D
32700035	Ceramic and ceramic composite parts, components, and accessories	X	D
	.....2002..	X	D
	.....1997..	X	D
32552002	Glues and adhesives	X	D
	.....2002..	X	D
	.....1997..	X	D
32551002	Paints, varnishes, stains, lacquers, shellacs, japans, enamels, and allied product	X	674 702
	.....2002..	X	N
	.....1997..	X	N
33632200	Engine electrical equipment (including spark plugs, magnetos, generators, starters, etc.)	X	2 418 708
	.....2002..	X	740 224
	.....1997..	X	616 706
33632100	Motor vehicle lighting fixtures (including headlights, taillights, running lights, and dome fixtures), excluding auto lamps	X	D
	.....2002..	X	D
	.....1997..	X	D
33511003	Automotive lamps (bulbs and sealed beams)	X	137 388
	.....2002..	X	492 774
	.....1997..	X	382 820
33591103	Storage batteries, automotive	X	162 297
	.....2002..	X	1 698 910
	.....1997..	X	1 516 452
33431001	Automotive radios and loudspeakers	X	D
	.....2002..	X	D
	.....1997..	X	D
33451400	Motor vehicle clusters, meters, and gauges (including speedometers and fuel level gauges), excluding electrical	X	1 954 689
	.....2002..	X	D
	.....1997..	X	D
001900C1	Semiconductors and related devices and electronic control modules	X	D
	.....2002..	X	D
	.....1997..	X	D

See footnotes at end of table.

Table 7. Materials Consumed by Kind: 2002 and 1997—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, and explanation of terms, see note 2 at end of table. For meaning of abbreviations and symbols, see introductory text]

Material code	Material consumed	Quantity	Delivered cost (\$1,000)
336112	Light truck and utility vehicle manufacturing—Con.		
33411103	Purchased computers for incorporation into motor vehicles, trucks, and buses	X	262 404
	2002..	X	D
	1997..	X	
00970099	All other materials and components, parts, containers, and supplies	X	4 331 497
	2002..	X	
	1997..	X	4 056 276
00971000	Materials, ingredients, containers, and supplies, nsk	X	156 683
	2002..	X	
	1997..	X	2 077 977

Note 1: For some establishments, data have been estimated from central unit values that are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: p—10 to 19 percent estimated; q—20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Note 2: The data in this table are based on the 2002 Economic Census. To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C.